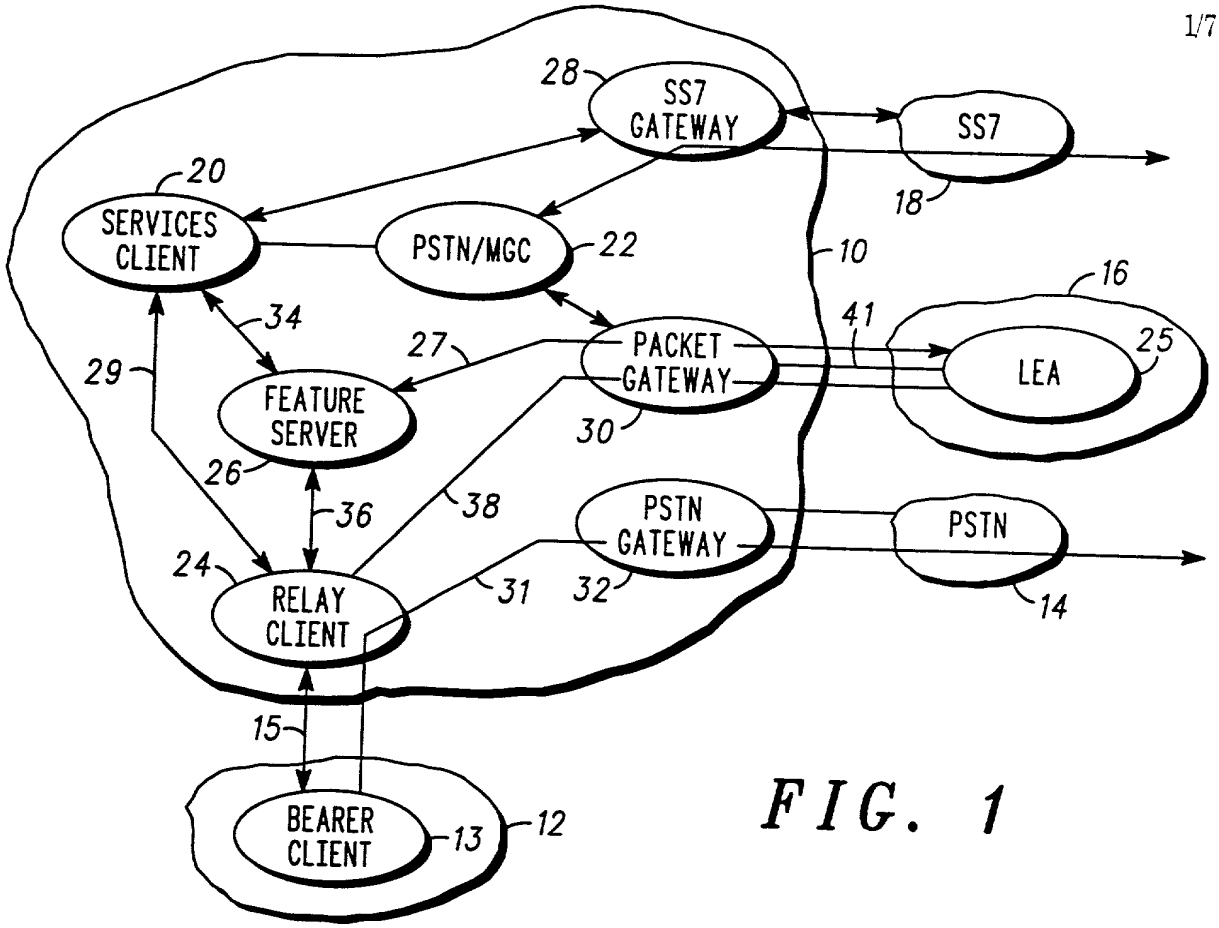

28
SS7 GATEWAY
SS7
18
20
SERVICES CLIENT
PSTN/MGC
22
10
16
41
34
27
PACKET GATEWAY
LEA
25
29
FEATURE SERVER
30
26
36
38
PSTN GATEWAY
PSTN
24
RELAY CLIENT
31
32
14
15
BEARER CLIENT
13
12

FIG. 1

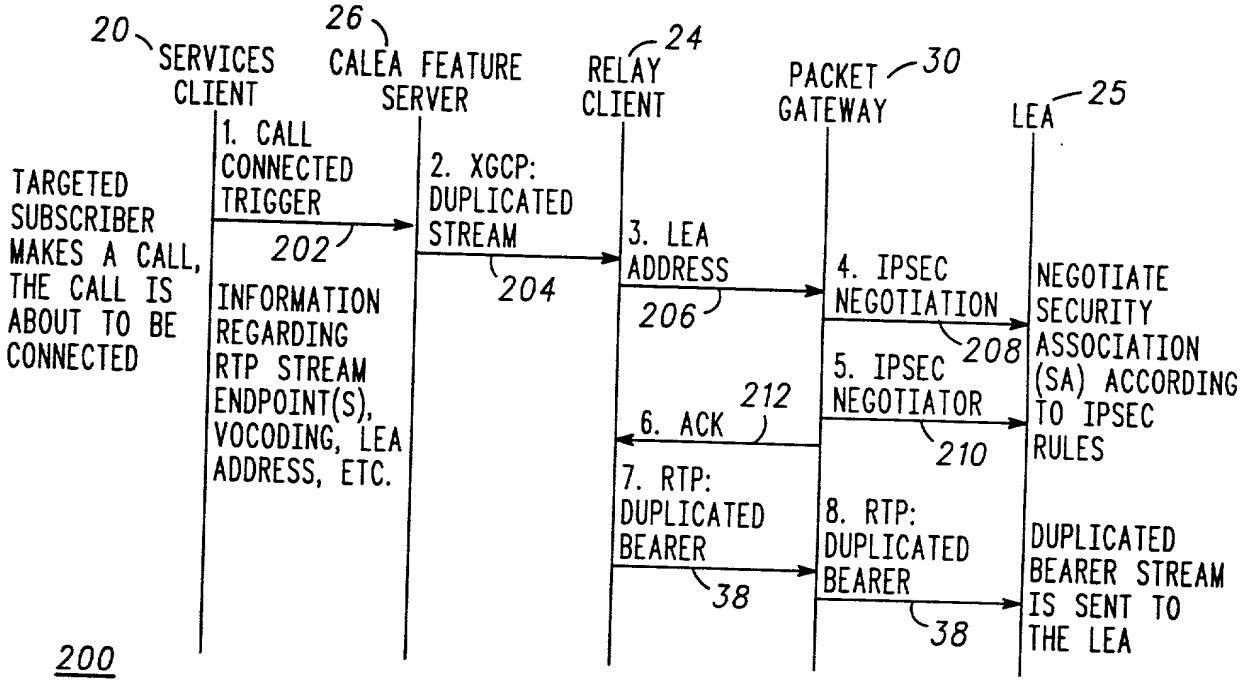

20
SERVICES CLIENT
26
CALEA FEATURE SERVER
24
RELAY CLIENT
30
PACKET GATEWAY
25
LEA
TARGETED SUBSCRIBER MAKES A CALL, THE CALL IS ABOUT TO BE CONNECTED
1. CALL CONNECTED TRIGGER
202
INFORMATION REGARDING RTP STREAM ENDPOINT(S), VOCODING, LEA ADDRESS, ETC.
2. XGCP: DUPLICATED STREAM
204
3. LEA ADDRESS
206
4. IPSEC NEGOTIATION
208
NEGOTIATE SECURITY ASSOCIATION (SA) ACCORDING TO IPSEC RULES
5. IPSEC NEGOTIATOR
210
212
6. ACK
7. RTP: DUPLICATED BEARER
38
8. RTP: DUPLICATED BEARER
38
DUPLICATED BEARER STREAM IS SENT TO THE LEA
200

FIG. 2

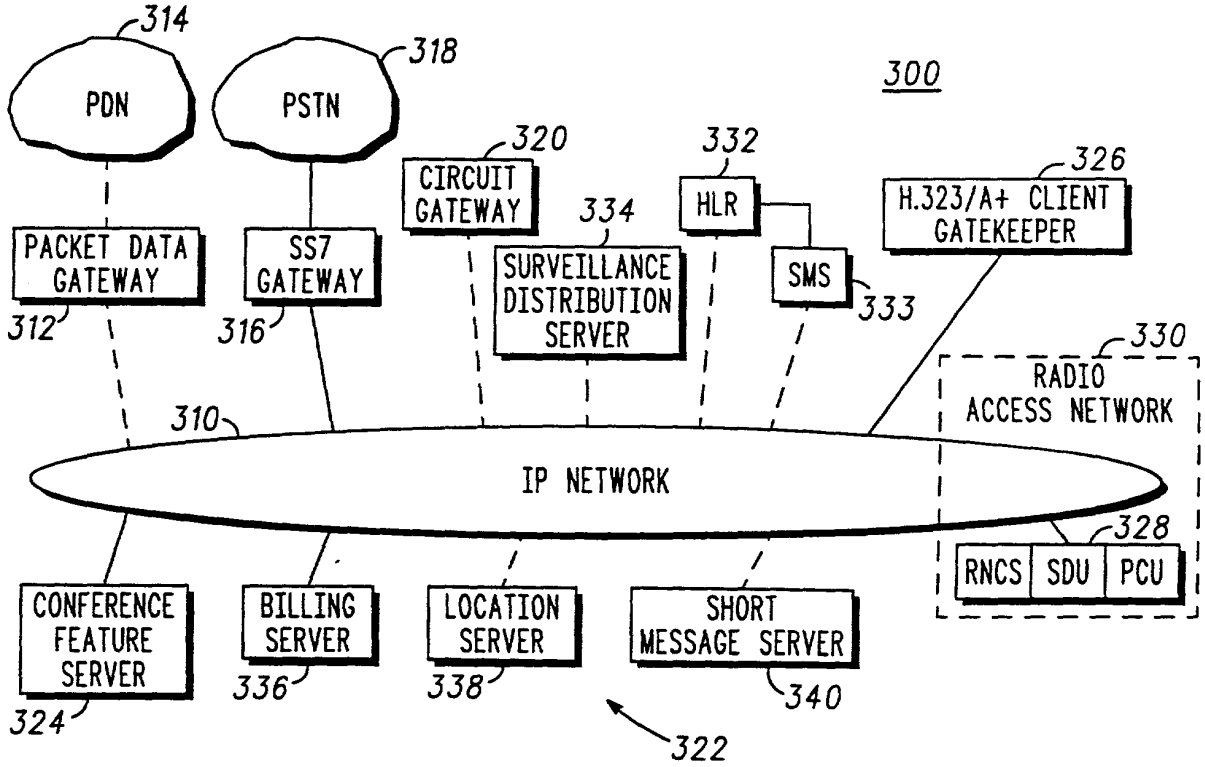

314
PDN
318
PSTN
300
320
CIRCUIT GATEWAY
332
HLR
326
H.323/A+ CLIENT GATEKEEPER
334
SURVEILLANCE DISTRIBUTION SERVER
SMS
333
PACKET DATA GATEWAY
312
SS7 GATEWAY
316
330
RADIO ACCESS NETWORK
310
IP NETWORK
328
RNCS
SDU
PCU
CONFERENCE FEATURE SERVER
324
BILLING SERVER
336
LOCATION SERVER
338
SHORT MESSAGE SERVER
340
322

FIG. 3

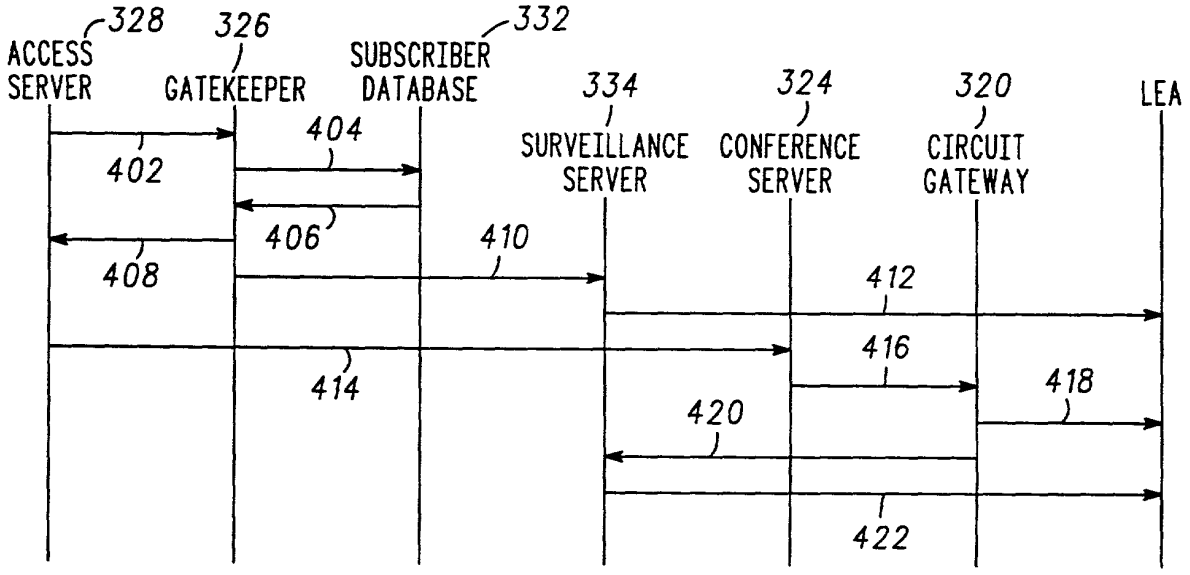

328
ACCESS SERVER
326
GATEKEEPER
332
SUBSCRIBER DATABASE
334
SURVEILLANCE SERVER
324
CONFERENCE SERVER
320
CIRCUIT GATEWAY
LEA
402
404
406
408
410
412
414
416
418
420
422

FIG. 4

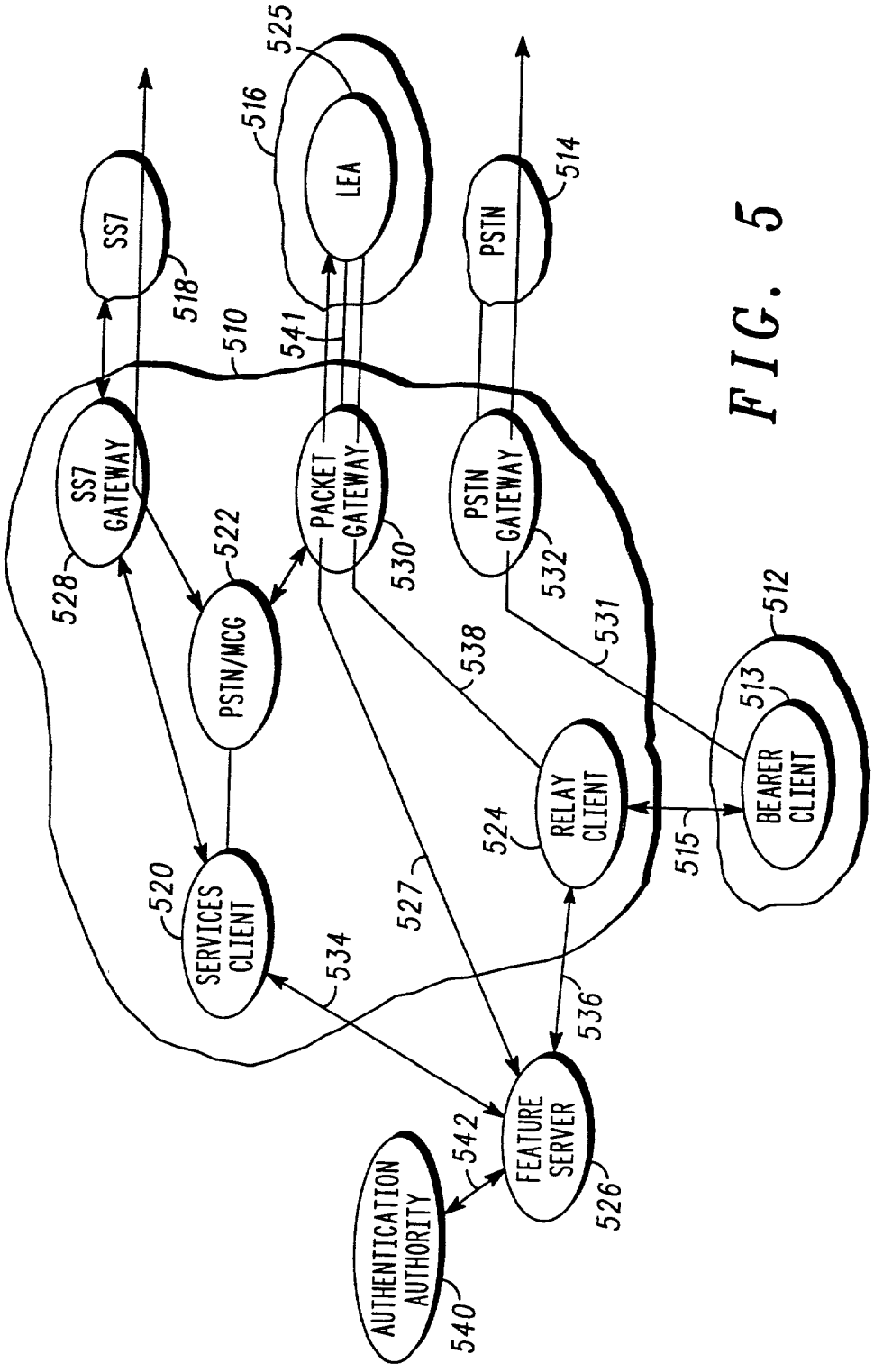
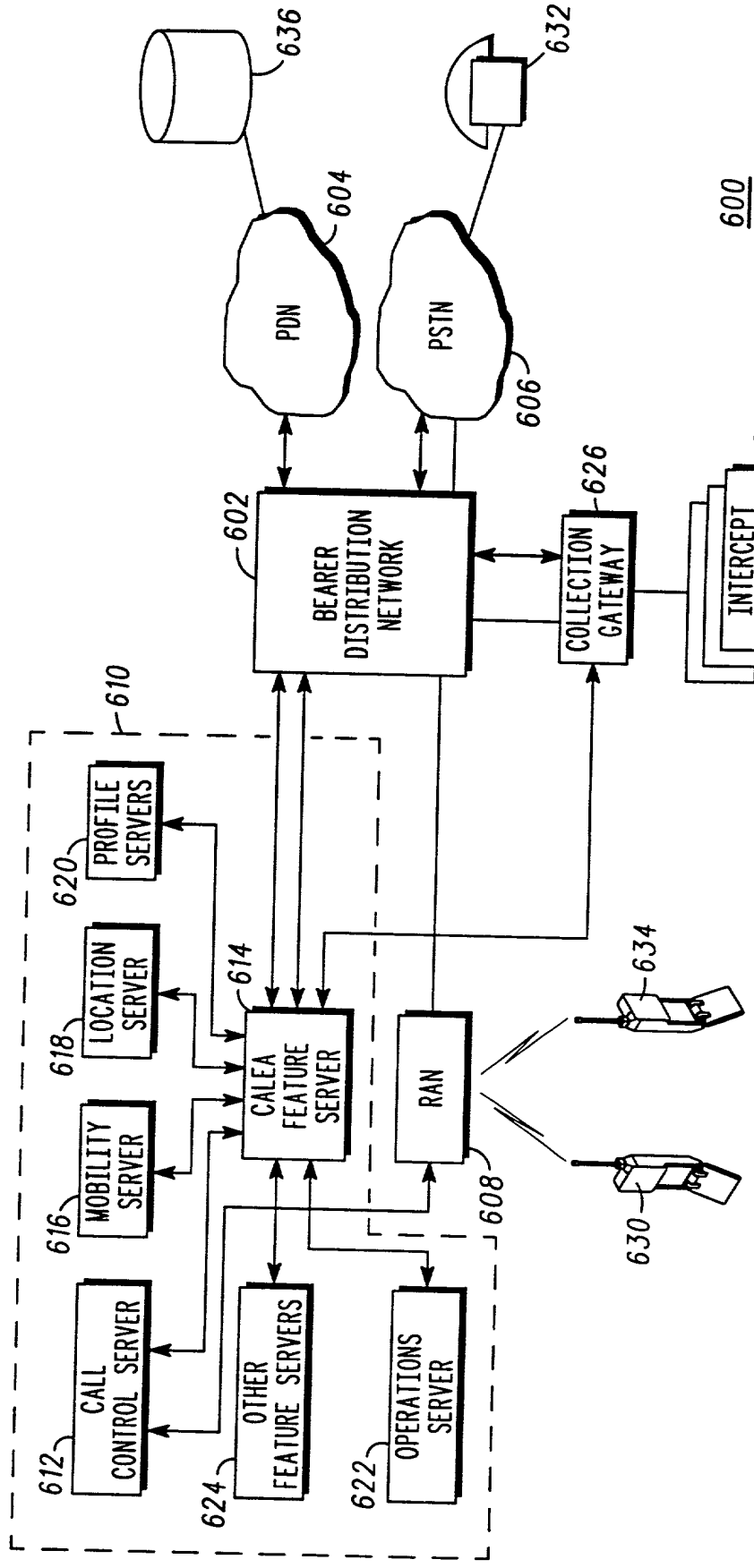

SS7
518
LEA
516
525
PSTN
514
510
541
SS7 GATEWAY
528
PACKET GATEWAY
530
PSTN GATEWAY
532
522
PSTN/MCG
538
531
512
513
BEARER CLIENT
RELAY CLIENT
524
515
520
SERVICES CLIENT
527
534
536
FEATURE SERVER
526
542
AUTHENTICATION AUTHORITY
540

FIG. 5


636
632
PDN
604
PSTN
606
602
BEARER DISTRIBUTION NETWORK
626
COLLECTION GATEWAY
628
INTERCEPT ACCESS POINT
610
PROFILE SERVERS
620
LOCATION SERVER
618
614
CALEA FEATURE SERVER
MOBILITY SERVER
616
RAN
608
634
630
CALL CONTROL SERVER
612
OTHER FEATURE SERVERS
624
OPERATIONS SERVER
622

600

FIG. 6

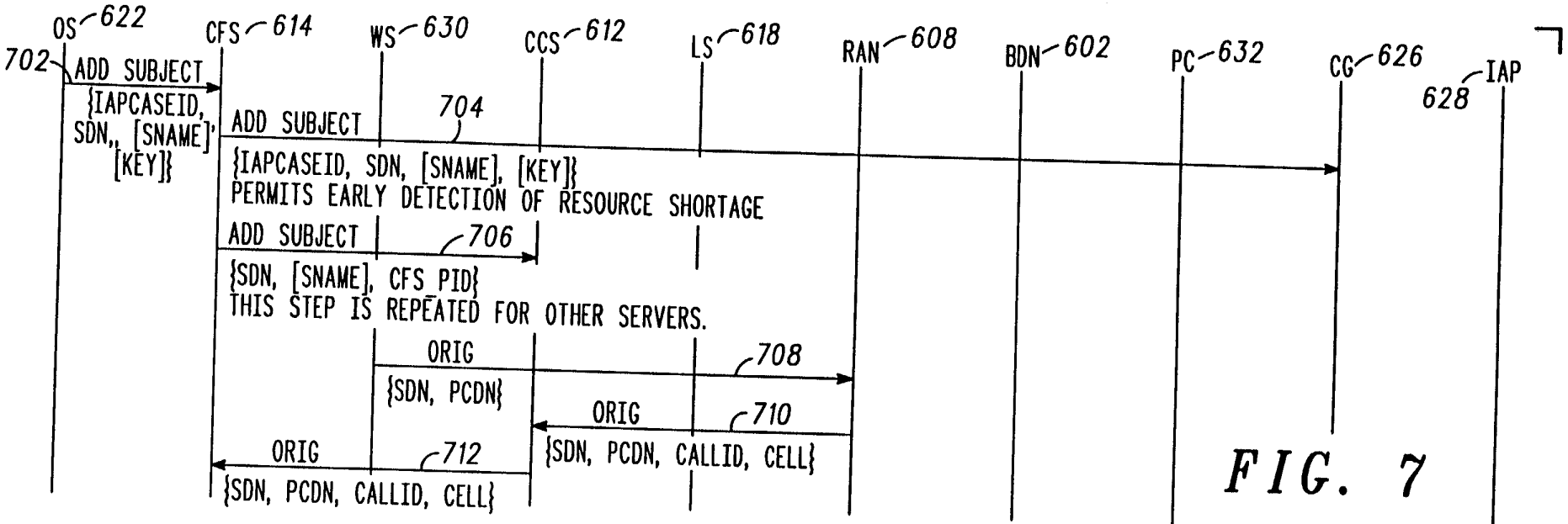

OS 622
CFS 614
WS 630
CCS 612
LS 618
RAN 608
BDN 602
PC 632
CG 626
IAP 628
702
ADD SUBJECT
{IAPCASEID, SDN,, [SNAME], [KEY]}
704
ADD SUBJECT
{IAPCASEID, SDN, [SNAME], [KEY]}
PERMITS EARLY DETECTION OF RESOURCE SHORTAGE
706
ADD SUBJECT
{SDN, [SNAME], CFS PID}
THIS STEP IS REPEATED FOR OTHER SERVERS.
708
ORIG
{SDN, PCDN}
710
ORIG
{SDN, PCDN, CALLID, CELL}
712
ORIG
{SDN, PCDN, CALLID, CELL}

FIG. 7

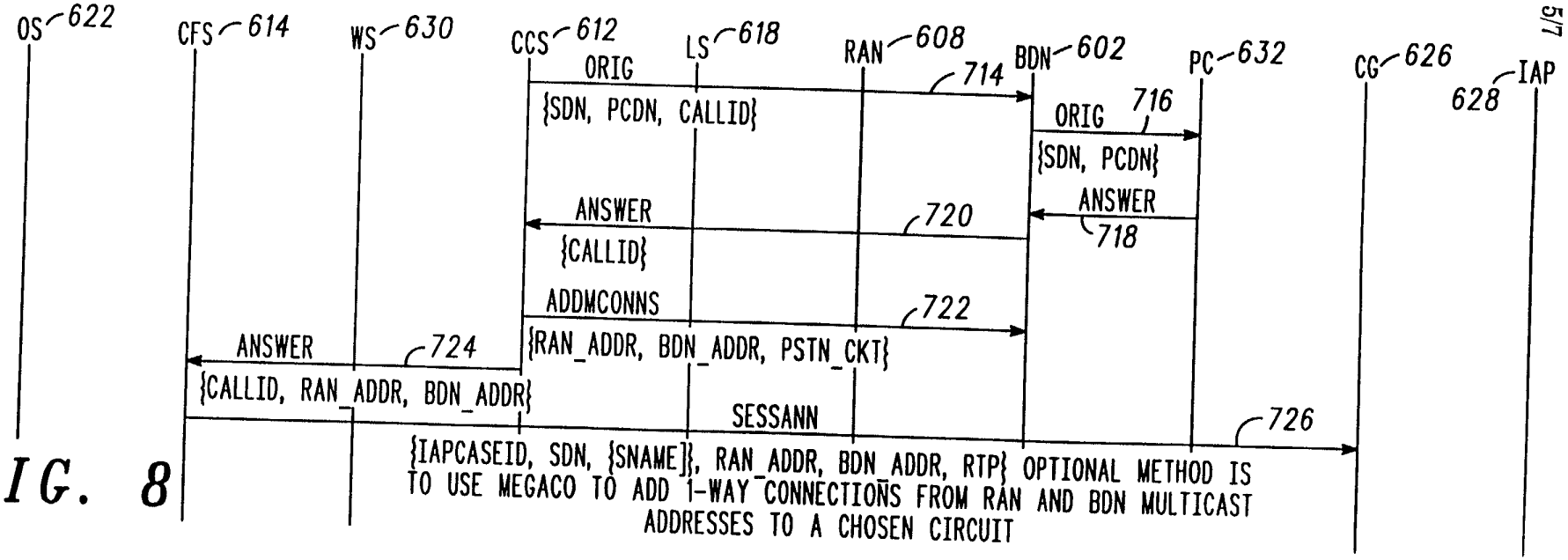

OS 622
CFS 614
WS 630
CCS 612
LS 618
RAN 608
BDN 602
PC 632
CG 626
IAP 628
714
ORIG
{SDN, PCDN, CALLID}
716
ORIG
{SDN, PCDN}
ANSWER
718
720
ANSWER
{CALLID}
722
ADDMCONNS
{RAN_ADDR, BDN_ADDR, PSTN_CKT}
724
ANSWER
{CALLID, RAN_ADDR, BDN_ADDR}
SESSANN
726
{IAPCASEID, SDN, {SNAME]}, RAN_ADDR, BDN_ADDR, RTP} OPTIONAL METHOD IS TO USE MEGACO TO ADD 1-WAY CONNECTIONS FROM RAN AND BDN MULTICAST ADDRESSES TO A CHOSEN CIRCUIT

FIG. 8

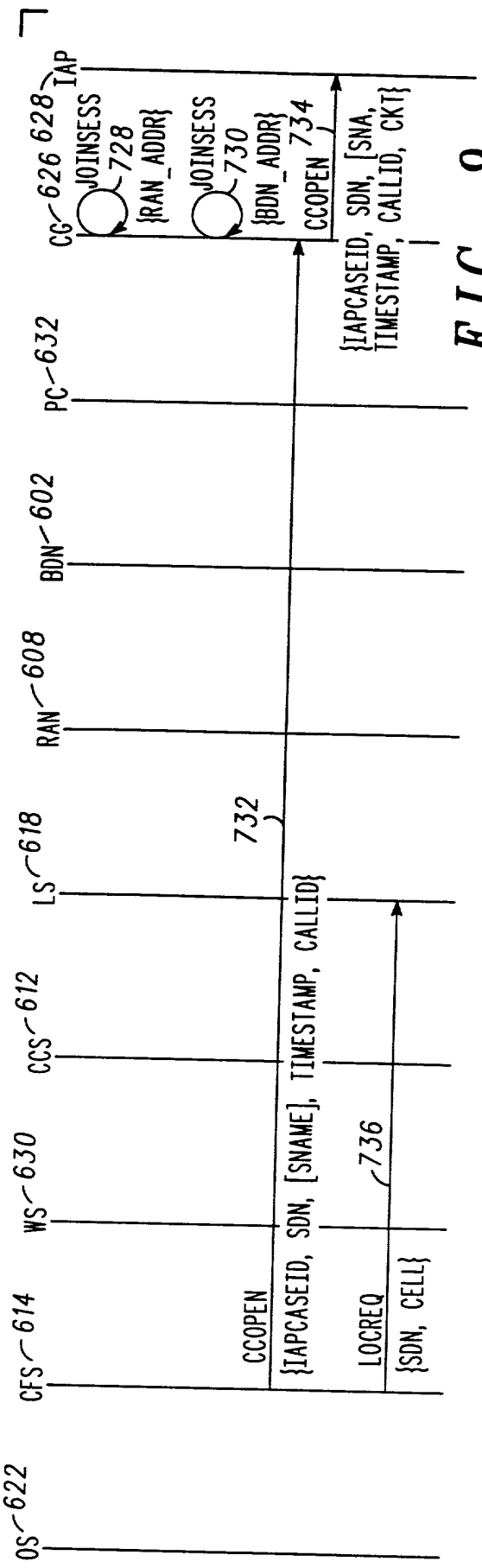


FIG. 9

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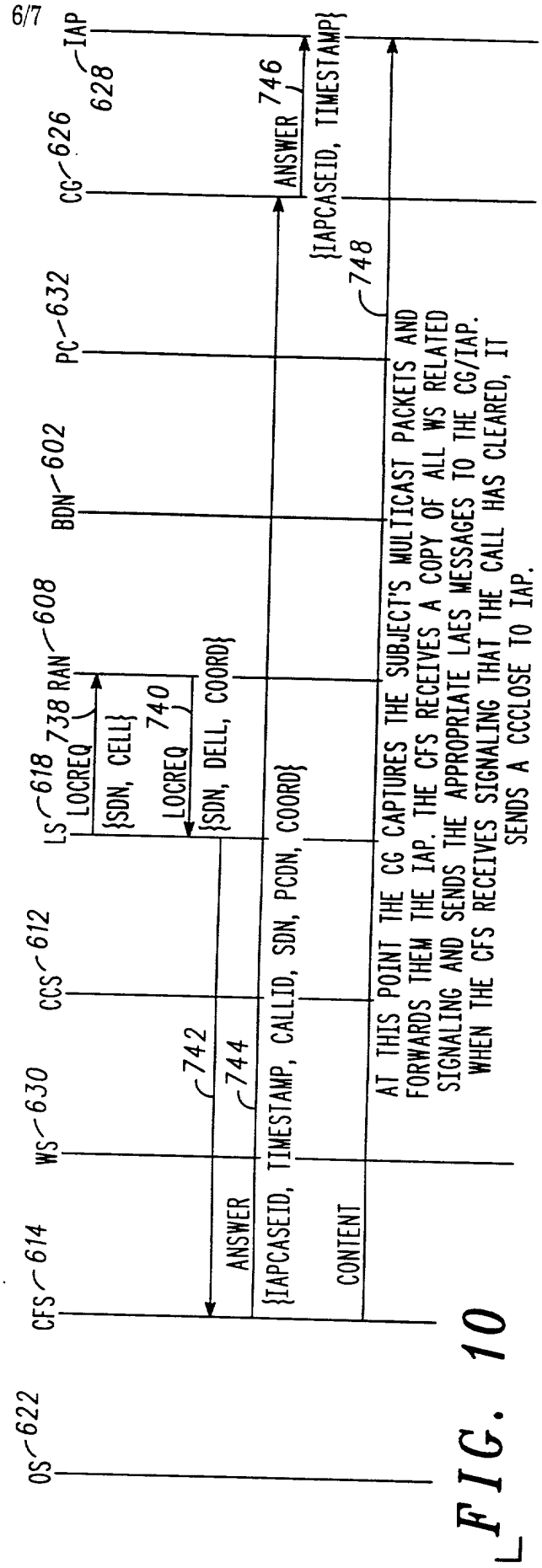

FIG. 10

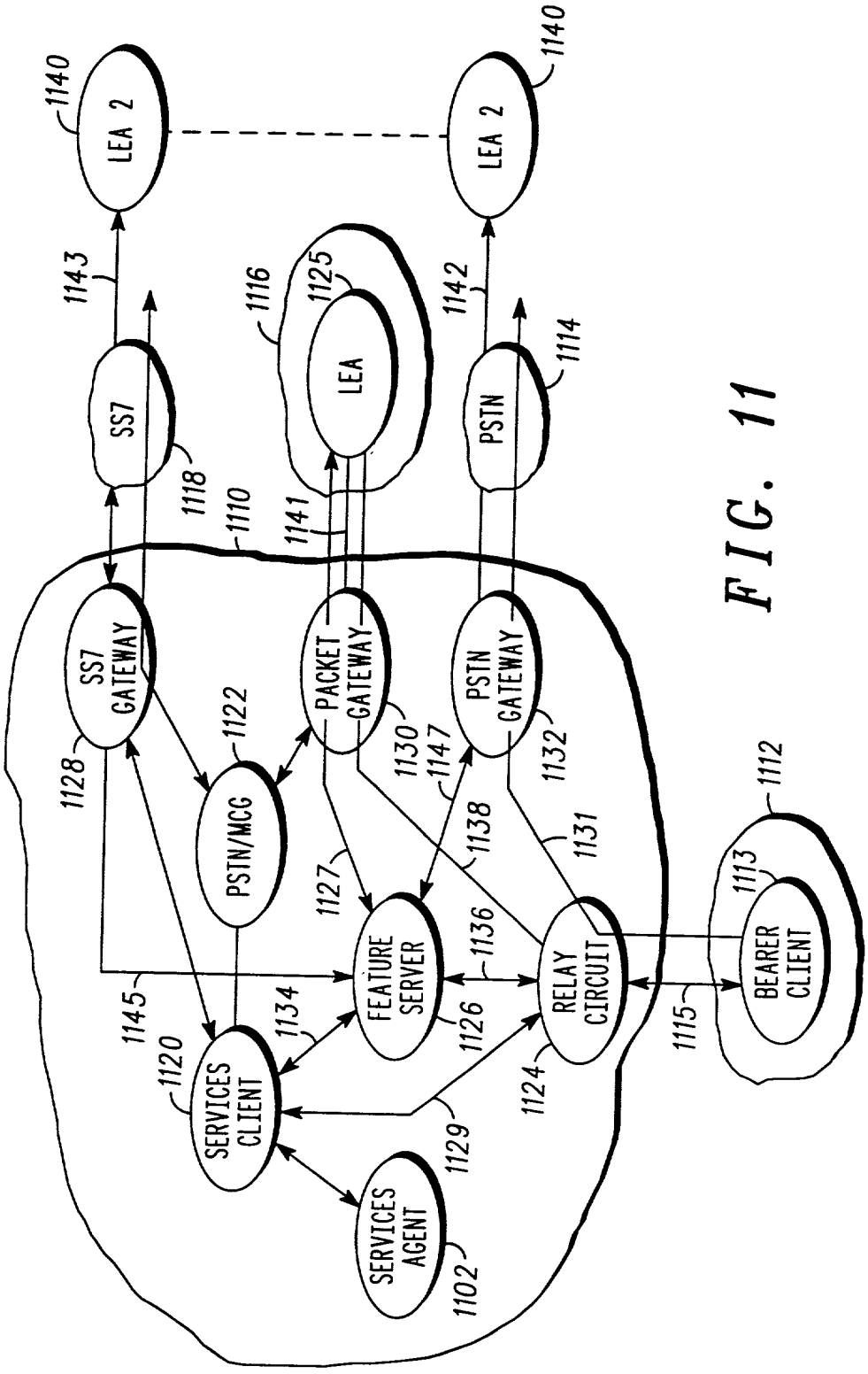
1140
LEA 2
1140
LEA 2
1143
1142
1116
1125
LEA
SS7
1118
1110
1141
PSTN
1114
SS7 GATEWAY
1128
1122
PSTN/MCG
PACKET GATEWAY
1130
1147
PSTN GATEWAY
1132
1138
1131
1127
1136
1112
1113
1145
1134
FEATURE SERVER
1126
RELAY CIRCUIT
BEARER CLIENT
1115
1120
SERVICES CLIENT
1124
1129
SERVICES AGENT
1102

FIG. 11